



GARY R. HERBERT  
Governor

SPENCER J. COX  
Lieutenant Governor

# State of Utah

## DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER  
Executive Director

### Division of Oil, Gas and Mining

JOHN R. BAZA  
Division Director

m/047/0090  
April

January 9, 2015

Doug Thornton  
U.S. Oil Sands (Utah), Inc.  
170 South Main Street, Suite 500  
Salt Lake City, Utah 84101

Subject: Initial Review of Revised Notice of Intention to Commence Large Mining Operations, U.S. Oil Sands, PR Springs Mine, M/047/0090, Uintah County, Utah

Dear Mr. Thornton:

The Division of Oil, Gas and Mining has reviewed the referenced revised Notice of Intention to Commence Large Mining Operations (Notice) which was received November 21, 2014. The attached comments will need to be addressed before the Division issues tentative approval of this significant revision.

The comments are listed under the applicable Minerals Rule heading; please format your response in a similar fashion. Please address only those items requested in the attached technical review by submitting replacement pages for the original Notice using redline and strikeout text. After the Notice is determined technically complete, the Division will ask that you send two clean copies of the complete and corrected plan. Both copies will be stamped approved, and one will be returned for your records.

The Division will suspend further review until receiving a response to this letter. If you have any questions in this regard please contact me at 801-538-5261 or the members of the review team: April Abate (aa) at 801-538-5214, Leslie Heppler (lah) at 801-538-5257, or Lynn Kunzler (lk) at 801-538-5310. Thank you for your cooperation.

Sincerely,

Paul B. Baker  
Minerals Program Manager

PBB:aa:eb

Attachment: Review

cc: Jerry Mansfield, SITLA [jmansfield@utah.gov](mailto:jmansfield@utah.gov)  
Dan Hall, DWQ ([dhall@utah.gov](mailto:dhall@utah.gov))

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January 8, 2015

Mr. Doug Thornton  
U.S. Oil Sands (Utah), Inc.  
170 SOUTH MAIN STREET, Suite 500  
Salt Lake City, Utah 84101

*Please  
finalize.*

*Task 6353 is deficient*

Subject: Initial Review of Significant Revision of the Notice of Intention to Commence Large Mining Operations, U.S. Oil Sands, PR Springs Mine, M/047/0090, Uintah County, Utah

Dear Mr. Thornton:

The Division has completed a review of the referenced Notice of Intention (NOI) which was received November 21, 2014. The attached comments will need to be addressed before tentative approval of this significant revision may be granted.

The comments are listed under the applicable Minerals Rule heading; please format your response in a similar fashion. Please address only those items requested in the attached technical review by sending replacement pages of the original mining notice using redline and strikeout text. After the notice is determined technically complete, we will ask that you send us two clean copies of the complete and corrected plan. Upon final approval, we will return one copy stamped "approved" for your records.

Please submit your response to this review by March 8, 2015.

The Division will suspend further review of the Notice of Intention until your response to this letter is received. If you have any questions in this regard please contact me at 801-538-5261 or the members of the review team: April Abate, at 801-538-5214, Leslie Heppler at 801-538-5257 or Lynn Kunzler at 801-538-5310. Thank you for your cooperation in completing this permitting action.

Sincerely,

Paul B. Baker  
Minerals Program Manager

PBB:aa:eb  
Attachment: Review

cc: Jerry Mansfield, SITLA [jmansfield@utah.gov](mailto:jmansfield@utah.gov)  
Dan Hall, DEQ

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**INITIAL REVIEW OF NOTICE OF INTENTION  
TO COMMENCE LARGE MINING OPERATIONS**

**U.S. Oil Sands  
PR Spring Mine**

**M/047/0090  
January 8, 2015**

**General Comments:**

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
1	General	Submittal should be formatted to easily incorporate additional revisions and amendments.		
2	General	Additional comments from the Division can be generated in the future based on submittals received in the future, every attempt should be made by the Operator to submit a complete NOI the first time around.		
3	General	It is the recommendation of the Division that the Operator uses the word "Operator" versus "USOS" throughout the NOI.	lah	

**R647-4-104 - Filing Requirements and Review Procedures**

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action

**R647-4-104 – Operator Information and Surface and Mineral Ownership**

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action

**R647-4-105 - Maps, Drawings & Photographs**

**General Map Comments**

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
4	All Maps	Please show "Phase 1" outline (as is referred to in the text) on all maps. Is Phase 1 the same as the disturbance boundary on the maps? This applies to Figures 1, 2, 4a-d, and 5.	lah	
5	All X-sections	On figure 6a, 6b and 6c please reduce the amount vertical exaggeration.  The current depiction of exaggerated cross section profiles gives the impression of steep terrain and may be misunderstood by the public.	lah  aa	

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
6	All X-sections	On Figure 6a, 6b and 6c please label the slope angles on both the cut and the fill slopes, to be consistent with the text. The rock slopes discussed on page 10 commit to 1H:1V slope, so label on x-sections as "max 1H:1V". Fill slopes noted on page 15 to be no steeper than 3H:1V, so label x-sections as "max 3H:1V"	lah	
7	Omission	Please add a figure or plan sheet of "typical BMP's" for erosion control.  The BMP design drawings from the original NOI were omitted for this submission. The Division would like to have the BMPs erosion control structures resubmitted so that these structures match the ones that will be used onsite.	Lah  aa	

#### 105.1 - Topographic base map, boundaries, pre-act disturbance

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
8	Figure 2	The Premining map shows the location of the soil stockpile in the same location as it is shown on Figure 4D at the end of year 4. Please make this correction.	aa	
9	Figure 2	The topsoil stockpile and stormwater management area colors on the map legend are too similar and should be changed so that they can be distinguished better from one another.	aa	

#### 105.2 - Surface facilities map

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
10	Omission	Include areas that will be lined and label areas where secondary containment is needed. Please also include labels on the figures of clay lined or HDPE liners.	lah	

#### 105.3 - Drawings or Cross Sections (slopes, roads, pads, etc.)

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
11	Figure 4d	Please include a reclamation maps up through the end of year 6, since that is what the text states will be the completion time for the Phase I activities.	aa	
12	Figure 7	Please be more specific about which sediment control features will be used at the bottom of the pit slopes instead of labeling the areas SED BMP.	aa	
13	Figure 8	Please put a strike and dip symbol on the map which is consistent with the text. Use USGS standards, i.e. add to legend, use stand symbol and place symbol at outcrop location.	lah	
14	Figure 11	Legend notes man camp in same color disturbance area on inset map. The man camp should be labeled as being off the map and include an arrow with a note that man camp is *.* miles.	lah	
15	Figure 11	Please include the placement of interim reclamation erosion control features on this map (see comment 40).	aa	

#### 105.4 - Photographs

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Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action

## **R647-4-106 - Operation Plan**

### **General Operation Comments**

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action

### **106.1 - Minerals mined**

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action

### **106.2 - Type of operations conducted, mining method, processing etc.**

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
16	Page 10 para 2	Subgrade ore – a) show locations of temporary stockpile on the maps and b) restate “suppress dust on roads or other areas.” (See page 14, para 1 from June 9, 2014 approval) . The size of the subgrade ore stockpiles should be relative to Table 3.  Subgrade ore should not be mixed with water and used for dust suppression on the roads or other areas. This creates an unnecessary risk of petroleum hydrocarbon laden-water as runoff that could enter drainages in the surrounding area.	Lah  aa	
17	Page 11 Para 4	Same comment written above for paragraph 4 on page 11.	lah	
18	Page 10 & App D	The blast rig needs to be included in Bond calculations.	lah	
19	Page 10 para 6	Text refers to 2013 Report by Seegmiller, but report has not been included as part of the plan. Remove reference to the report as slopes less than 1H:1V do not require a geomechanical or geotechnical report. OGM would prefer the operator to refer to the FOS (Factor of Safety) that will be maintained by the operator.	lah	
20	Page 12	Please show areas of secondary containment liners on a figure such as “3a” for all areas discussed on page 12.	lah	
21	Pg. 13 106.2	The plan indicates that the solvent and will be recycled and returned to the front of the process. Is there any solvent and/or process water that eventually cannot be recycled any further and will require storage for off-site disposal?	aa	
22	Page 14 Para 6	Please provide the pipeline diameter in the text, show on reclamation map where pipeline will be capped during final reclamation, and include in bond calculation sheets	lah	
23	Page 15	Text refers to 2013 Report by Seegmiller, but report has not been included as part of the plan and neither has the testing conducted by IGES. OGM would prefer the operator to refer to the FOS (Factor of Safety) that will be maintained by the operator on the 3H:1V slopes.	lah	

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
24	Page 16 Para 2	More information is needed on the assumptions of pore water pressure increases, as the plan indicates the backfill will be blended with overburden and interburden.	lah	
25	Page 16 Para 2	Operator refers to "straw wattles or similar BMP". OGM would prefer to be rewritten as "the appropriate erosion BMP, as defined under the impacts section of the NOI". It should be further noted, that OGM prefers stone check dams versus straw wattles, but each has their appropriate application. Please include a drawing or plan sheet with the BMPs that could be used at the site. (this comment also applies page 15 paragraph 4)	lah	
26	Page 17 Table 1	In the row labeled "topsoil storage area on pit*", please add parentheses around 3.8 to show that it is a negative number.	lah	

#### 106.3 - Estimated acreages disturbed, reclaimed, annually

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
27	Page 18 Table 2	Table notes only 9 acres at year six. Please specify in text what acreage will be remaining at year six.	lah	

#### 106.4 - Nature of materials mined, waste and estimated tonnages

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
28	Page 18 Para 3	Please rewrite "...Overlain by Green River Formation..." as the formation below is also Green River formation.	lah	

#### 106.5 - Existing soil types, location, amount

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action

#### 106.6 - Plan for protecting & re-depositing soils

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
29	Pg. 22	The text contains the statement "...salvaged vegetation will be placed adjacent to or beneath the salvaged soil". Vegetation should not be buried under the soil pile but placed on the surface of the pile to promote growth and future live hauling of vegetation for reclamation.	aa	

#### 106.7 - Existing vegetation - species and amount

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action

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**106.8 - Depth to groundwater, extent of overburden, geology**

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
30	Page 25 para 3	Include a brief discussion on the stratigraphy below the lowest mining points.	lah	

**106.9 - Location & size of ore, waste, tailings, ponds**

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action

**106.10 - Amounts of material moved (including ore, waste, topsoil, etc.)**

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action

**R647-4-108 - Hole Plugging Requirements**

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action

**R647-4-109 - Impact Assessment**

**109.1 - Impacts to surface & groundwater systems**

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
31	Pg. 28	<p>The narrative notes that no springs or seeps were identified within the Phase 1 project area during a May 2014 reconnaissance with personnel from Utah OGM and DWQ, and the Utah Geological Survey. While this is true, the field reconnaissance did identify springs and seeps flowing within Long Shot Canyon (T16S R23E, Sec. 6), which is part of the Main Canyon watershed. The U.S. Geological Survey has mapped these springs, along with several others within the Main Canyon watershed. Access restrictions prevented the group from conducting a more detailed survey of the other mapped seeps and springs within the watershed.</p> <p>Because the Phase 1 mining area is part of the Main Canyon watershed, it is necessary to evaluate any impacts from the mining operation, which is why a baseline characterization of the springs and seeps is needed.</p> <p>Please include a baseline characterization spring and seep survey to begin in the spring of 2015.</p>	aa	

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Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
32	Pg. 30	The water right allotment for the two production wells is 360 acre feet/annually. The source of this water is from the deep Douglas Creek regional aquifer that is located approximately 2,000 below the surface. The NOI does not address what volumes of water are needed to process the bitumen. In order for the Division to determine that U.S. Oil Sands is not exceeding their allotment of water from water right number 41-3523, please update the narrative and quantify the amount of water used for processing on both a daily and annual basis.	aa	

### 109.2 - Impacts to threatened & endangered wildlife/habitat

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action

### 109.3 - Impacts on existing soils resources

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action

### 109.4 - Slope stability, erosion control, air quality, safety

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
33	Page 37 Para 4	As written 1:1, elsewhere it is properly annotated as 1H:1V, please change to 1H:1V for consistency.	lah	
34	Page 37 Para 4	Please see comment above for page 10 para 6.	lah	
35	Page 38 Para 2	Please see comment above for page 16 para 2.		

### 109.5 - Actions to mitigate any impacts

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action

## R647-4-110 - Reclamation Plan

### 110.1 - Current & post mining land use

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action



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### 110.2 - Roads, highwalls, slopes, drainages, pits, etc., reclaimed

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
36	Page 42 all	Please define "deep-ripped" The Division would like it restated as "will be ripped to a minimum of * inches".	lah	
37	Page 43 Para 5	OGM agrees with the transfer of a viable water well, but until such time a transferee is found in the future, the well and the pipeline will need to be included in the bond costs. Please add to bond costs and include a brief narrative to the text.	lah	

### 110.3 - Description of facilities to be left (post mining use)

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action

### 110.4 - Description or treatment/disposition of deleterious or acid forming material

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action

### 110.5 - Revegetation planting program

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
38	Page 46-47	<p>The plan states that if broadcast seeded, the area would be disked after seeding. If the area needs to be disked, it should be done just prior to seeding, otherwise most of the seed would be buried too deep. Please revise this.</p> <p>Drill seeding may result in poor establishment of much of the seed. Very small seeds, such as the Poa species and sagebrush need to be broadcast. They can still be seeded with a good rangeland drill if it is equipped with separate seed boxes, and the drop tubes are pulled so that the seed is scattered on the surface vs. going through the furrow openers.</p> <p>Bitterbrush is best seeded with a seed dribbler, or at a minimum a packer wheel is needed if drill seeded (it needs a firm seedbed). Alternatively, it can be hand seeded and stepping on each 'seed hill' to pack the soil.</p>	lk  lk  lk	
39	Page 47	The seed mix (rates) should be adjusted. As listed, it is likely only a stand of grasses would establish and very few forbs or shrubs. Given the small size of several of the species, 12-14 lbs/acre for broadcast seeding should be adequate. It is recommended that the rates for Muttongrass and Canby blue grass be reduced to 0.5 lbs per acre each, and the rate for Bluebunch wheatgrass, Western wheatgrass, and Great Basin Wildrye be cut in half. While the resulting stand with these changes would still favor a grassland establishment, there would certainly be more forbs and shrubs which are important to resident wildlife species in the area.	lk	

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Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
40	Page 48	USOS should include a commitment to use erosion controls structures during the interim period from the time when initial seeding has taken place up through the time when vegetation is successful.	aa	

**R647-4-112 - Variance** (List all variances requested and make a finding if approving.)

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
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**R647-4-113 – Surety**

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
41		Please reevaluate the exploration permit E/19/0053 in order to determine if the permit or a portion thereof, can be released from bond and transferred over to the large mine permit.	aa	
42		Upon approval of the significant revision, the operator will be required to post an additional surety installment once the adjusted amount is determined.	aa	
43		Appendix E did not contain bond calculations. Please include bond calculations as part of the second submittal.	whw	